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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/842,797      04/27/2001      Koichiro Tanaka      12732-034001      7383

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EXAMINER

GUERRERO, MARIA F

ART UNIT      PAPER NUMBER

2822

DATE MAILED: 02/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/842,797

Applicant(s)

TANAKA, KOICHIRO

Examiner

Maria Guerrero

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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### **DETAILED ACTION**

1. This Office Action is the First Action on the merits.

Claims 1-30 are pending.

#### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Drawings***

3. Figures 1-2D, 4A-4C, 27A-27C should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### ***Specification***

4. The abstract of the disclosure is objected to because exceed 150 words. Correction is required. See MPEP § 608.01(b).

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Objections***

5. Claims 13-24 are objected to because of the following informalities: claims 13-18 recite, "a semiconductor apparatus according to claim". The independent claims 1-6 recite "a method of fabricating a semiconductor device". Claims 19-24 recite "wherein the semiconductor device is a device selected from the group consisting of: a portable telephone, a video camera, a digital camera, a projector, a goggle type display, a personal computer, a DVD player, an electronic book, and a portable information terminal. It is suggested to replace "the semiconductor device is a device selected" by:

- the semiconductor device is part of a device selected- or
- the semiconductor device is employed on a device selected-.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-12 and 25-30 are rejected under 35 U.S.C. 102(b) as being anticipated by G. Andra et al. "Laser induced crystallization: A method for preparing silicon film solar cells".

G. Andra et al. teaches forming a first and second crystalline regions by irradiating laser beam to an amorphous semiconductor film while relatively moving the

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laser beam with respect to the amorphous semiconductor film. G. Andra et al. shows the second crystalline region including a portion of the first crystalline region (pages 639-640). G. Andra et al. discloses employing a wavelength of the laser beam being 514 nm and employing an Nd: YAG laser pulse with the wavelength of 532 nm (pages 639-640).

Furthermore, G. Andra et al. teaches scanning the laser beam over the amorphous semiconductor film and crystallizing line by line with 30% overlap (page 639). G. Andra et al. teaches the crystalline performance of the first crystalline, the second crystalline region, and the region overlapped with first and second crystalline regions being the same (Fig. 1-6, pages 640-641).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-6 and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (U.S. 5,365,080) in view of G. Andra et al.

Yamazaki et al. teaches forming a first and second crystalline regions by irradiating laser beam to an amorphous semiconductor film while relatively moving the laser beam with respect to the amorphous semiconductor film (col. 2, lines 20-35, col. 4, lines 50-68). Yamazaki et al. shows the second crystalline region including a portion of the first crystalline region (col. 4, lines 65-68, col. 5, lines 1-5). Yamazaki et al. teaches

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employing a YAG laser or argon laser to crystallize the semiconductor film (col. 5, lines 1-5, col. 6, lines 1-10). In addition, Yamazaki et al. teaches the semiconductor device being used in a liquid crystal display device and other devices (col. 1, lines 9-13).

Yamazaki et al. is silent about the wavelength of the laser beam. However, G. Andra et al. shows employing the argon laser with the wavelength of 514 nm and employing an Nd: YAG laser pulse with the wavelength of 532 nm (pages 639-640).

Since Yamazaki et al. and G. Andra et al. are both from the same field of endeavor of laser-induced crystallization, the purpose disclosed by G. Andra et al. would have been recognized in the pertinent art of Yamazaki et al.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Yamazaki et al. reference by specifying the wavelength as taught G. Andra et al. in order to control the size of the grains in the crystallized layer (G. Andra et al., page 639; Yamazaki et al.)

Claims 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (U.S. 5,365,080) and G. Andra et al. as applied to claims 1-6 and 13-18, above, and further in view of Yamazaki et al. (U.S. 5,893,730).

Regarding claims 19-24, the combination of Yamazaki et al. and G. Andra et al. does not specifically show the semiconductor device as being part of a video camera, a personal computer etc. However, Yamazaki et al. shows that these devices utilize semiconductor devices (Fig. 16A-16F, col. 24, lines 58-67, col. 25, lines 1-47).

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Since Yamazaki et al.'080 and Yamazaki et al. '730 are both from the same field of endeavor of crystallization, the purpose disclosed by Yamazaki et al. '730 would have been recognized in the pertinent art of Yamazaki et al. '080.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Yamazaki et al. and G. Andra et al. by specifying the use of the semiconductor device as being part of a video camera, a personal computer etc. as taught Yamazaki et al. '730 because these devices utilize the display device taught by Yamazaki et al. '080 (Yamazaki et al. '730, col. 24, lines 58-67).

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takenouchi et al. (U.S. 5,561,081) and Shimogaichi et al. (U.S. 6,020,224) teach crystallizing a semiconductor film using laser beams.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Guerrero whose telephone number is 703-305-0162.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

*Maria Guerrero*  
Maria Guerrero  
Patent Examiner  
January 31, 2003